

IN THE CLAIMS:

1. (Currently amended) Device for cooling power electronics (9), comprising:
a support plate (21) on which the power electronics are mounted,
a first pressed metal plate including liquid circulation channels press-formed in said first metal plate;

wherein a cooling circuit (22) for cooling by circulation of a liquid is defined by said liquid circulation channels mounted directly or indirectly to the support plate, and

wherein the first pressed metal plate is smaller than the support plate when observed in a direction perpendicular to said plates.

2. (previously presented) Cooling device according to claim 1, wherein the cooling circuit (22) comprises a liquid inlet channel (29), a liquid outlet channel (30) and said circulation channels (28) for the circulation of the liquid between the inlet channel and the outlet channel.

3. (previously presented) Cooling device according to claim 2, wherein the cooling circuit comprises deflectors (31) situated in the liquid circulation channels.

4. (previously presented) Cooling device according to claim 2, wherein the cooling circuit comprises turbulators (32) distributed in the liquid circulation channels.

5. (Cancelled).

6. (Currently amended) Cooling device for cooling power electronics (9), comprising:
a support plate (21) on which the power electronics are mounted,
a first pressed metal plate including liquid circulation channels press-formed in said first metal plate;

wherein a cooling circuit (22) for cooling by circulation of a liquid is defined by said liquid circulation channels fixed directly to the support plate, said circulation channels facing the support plate to provide a closed-loop fluid path extending between an inlet and an outlet of the cooling circuit,

wherein the first pressed metal plate having the cooling circuit is fixed to the support plate by brazing, and

further comprising at least one orifice extending through both the support plate and the pressed metal plate.

7. (previously presented) Cooling device according to claim 1, further comprising at least one second intermediate metal plate (24) fixed between the support plate (21) and the first pressed metal plate (23).

8. (previously presented) Cooling device according to claim 7, wherein the second metal plate is flat, brazed to the first pressed metal plate (23).

9. (previously presented) Cooling device according to claim 1, further comprising a metal manifold (27) connected to the cooling circuit.

10. (previously presented) Cooling device according to claim 1, wherein the first metal plate is made of aluminum.

11. (previously presented) Cooling device according to claim 6, wherein at least one of said support plate (21) and said first metal plate (23) comprises a plating by co-lamination.

12. (previously presented) Cooling device according to claim 1, wherein the pressed plate (23) is fixed directly by brazing to the support plate (21).

13. (previously presented) Cooling device according to claim 12, wherein at least one of the pressed plate (23) and the support plate (21) comprises plating by co-lamination.

14. (previously presented) Cooling device according to claim 13, wherein the pressed and support plates (21, 23) are made from aluminum.

15. (previously presented) Cooling device according to claim 9, wherein the support plate (21) carries the manifold.

16. (Currently amended) Method of manufacturing a power electronics cooling device, comprising the steps of:

- producing a cooling circuit (22) by pressing a first metal plate (23) to integrally and homogeneously form liquid circulation channels (28) in said first metal plate,
- producing at least one orifice through the first metal plate (23) and a support plate,
- brazing the cooling circuit on a said support plate (21) for the power electronics (9),
- brazing, on the cooling circuit, ~~an inlet and outlet~~ at least one manifold (27) for a cooling liquid to provide a closed-loop fluid path ~~extending between an inlet channel and an outlet channel of~~ connected to and delivering said cooling liquid to the manifold (27).

17. (previously presented) Method according to claim 16, wherein the step of brazing the cooling circuit comprises an operation of brazing the first plate (23) under a second intermediate metal plate (24) and brazing the second plate (24) under the support plate (21).

18. (previously presented) Method according to claim 16, wherein the step of producing the cooling circuit by pressing of the first metal plate (23) comprises the pressing of deflectors (31) and/or turbulators (32) into the first metal plate (23).

19. (previously presented) Alternator or alternator/starter for a motor vehicle, comprising a power electronics cooling device according to claim 1.

20. (previously presented) Cooling device according to claim 3, wherein the cooling circuit further comprises turbulators (32) distributed in the liquid circulation channels.

21. (previously presented) Cooling device according to claim 10, wherein at least one of said support plate and said first metal plate comprises plating by co-lamination.

22. (Currently amended) Device for cooling power electronics (9), comprising:
a support plate (21) on which the power electronics are mounted, said support plate (21) being planar;
a first plate including at least two liquid circulation channels formed in said first metal plate, said at least two circulation channels extending in different directions,
wherein a cooling circuit (22) for cooling by circulation of a liquid is defined by said liquid circulation channels, and
wherein turbulators are configured in the cooling circuit in a junction of said two liquid circulations channels.

23. (previously presented) Device for cooling power electronics (9), comprising:
a support plate (21) with a first side on which power electronics are mounted;
a first plate including at least two liquid circulation channels formed in said first metal plate;
at least one manifold extending on the first side of the support plate (21),
wherein a cooling circuit (22) for cooling by circulation of a liquid is defined by said liquid circulation channels.

24. (New) Method of manufacturing a power electronics cooling device, comprising the steps of:

- producing a cooling circuit (22) by pressing a first metal plate (23) to integrally and homogenously form liquid circulation channels (28) in said first metal plate,
- producing turbulators in the cooling circuit,
- brazing the cooling circuit on said support plate (21) for the power electronics (9),
- brazing, on the cooling circuit, at least one manifold (27) for a cooling liquid to provide a closed-loop fluid path extending between an inlet channel and an outlet channel of the manifold (27).